

Challenges and Opportunities of Cooperative Banks in the Era of Digital Financial Inclusion in Rajasthan

¹Dr. Sandeep Kumar, ²Manoj Kumar

¹²Onkarmal Somani College of Commerce, Jodhpur

Abstract—This research examines the challenges and opportunities faced by cooperative banks in Rajasthan in the context of digital financial inclusion. Cooperative banks play a crucial role in providing financial services to rural and semi-urban populations, yet their transition to digital platforms is influenced by various socio-economic and infrastructural factors. Using secondary data from RBI reports, government publications, academic journals, and industry analyses, this study identifies key challenges, including low digital literacy, limited internet infrastructure, cybersecurity concerns, and resistance to change. At the same time, it highlights significant opportunities through government initiatives such as PMJDY and Digital India, partnerships with fintech companies, operational efficiency, and the potential for expanding financial access. The findings provide insights for policymakers, banking institutions, and stakeholders to develop strategies that enhance digital adoption, improve financial inclusion, and ensure sustainable growth of cooperative banks in Rajasthan.

Index Terms—Cooperative Banks, Digital Financial Inclusion, Rajasthan, Rural Banking, Challenges, Opportunities

I. Introduction

Cooperative banks in Rajasthan have long played a foundational role in promoting financial inclusion, especially among the rural and marginalized populations that form the backbone of the state's agrarian economy. The origin of the cooperative movement in Rajasthan traces back to the early 20th century, with the establishment of the first cooperative banks in Ajmer and Deeg in 1904. Since then, the cooperative banking sector has evolved into a comprehensive three-tier structure comprising the Rajasthan State Cooperative Bank (RSCB) at the apex, 29 District Central Cooperative Banks (DCCBs), and thousands of Primary Agricultural Credit Societies (PACS) operating at the grassroots level. These institutions are collectively regulated by the Reserve Bank of India (RBI), the National Bank for Agriculture and Rural Development (NABARD), and the Rajasthan Cooperative Societies Act, 2001, which provides the legal framework for their functioning, governance, and expansion.[1]

The principal objective of cooperative banks in Rajasthan is to provide affordable credit to farmers, small businesses, and self-help groups, thereby enabling economic self-reliance and supporting rural development initiatives. Their significance is especially notable in a state where agriculture and allied sectors account for a significant portion of economic activity and where formal financial access was historically limited for large segments of the population. Cooperative banks function not only as providers of short-term, medium-term, and long-term loans for crop production and developmental activities but also offer a variety of deposit

schemes tailored to the savings habits and seasonal needs of rural customers. They actively support women's empowerment programs, self-help groups, and community-level poverty alleviation projects, directly impacting the social fabric of rural Rajasthan.

In recent years, the landscape of financial inclusion in Rajasthan has experienced a paradigm shift, driven by advances in digital technology and the government's strategic push toward a "Digital India." Cooperative banks are increasingly integrating digital banking platforms into their operations—ranging from the implementation of Core Banking Solutions (CBS) and mobile banking applications to enabling UPI payments and digital loan processing. These initiatives are designed to bridge the digital divide by extending the reach of banking services to even the most remote and underserved areas of the state. The digital transformation not only enhances customer convenience but also streamlines internal processes, reduces transaction costs, and introduces greater transparency in financial operations.

However, this transition into the digital era is not without significant challenges. Many cooperative banks in Rajasthan continue to grapple with legacy systems, inadequate digital infrastructure, high levels of non-performing assets (NPAs), and competition from technologically advanced commercial banks.[2] Low digital literacy among customers and staff, persistent cybersecurity risks, and the need for continuous training and investment in new technologies further complicate the digitalization process. Regulatory complexities, changing compliance standards, and limited access to capital for technological upgrades create additional hurdles for cooperative banks striving to keep pace with the evolving financial ecosystem.[3]

Despite these obstacles, cooperative banks in Rajasthan possess a unique opportunity to deepen their impact on financial inclusion through strategic adoption of digital tools and collaborations with fintech providers. Government initiatives such as the Pradhan Mantri Jan Dhan Yojana (PMJDY), Direct Benefit Transfer (DBT) schemes, and the Digital India campaign are providing critical impetus by increasing the accessibility and relevance of digital banking in the cooperative sector. As catalysts for inclusive growth, cooperative banks that successfully navigate the challenges of digital transformation stand to play a vital role in the socio-economic development of Rajasthan, enabling access to financial services for millions and driving the collective progress of rural and urban communities alike.

II. Objectives of the Study

- To examine the existing status of digital adoption in cooperative banks in Rajasthan.
- To identify key challenges hindering digital financial inclusion.
- To explore emerging opportunities created by digitalization and government initiatives.
- To recommend strategies for enhancing digital transformation in cooperative banks.

III. Research Methodology

The present study adopts a descriptive and analytical approach to examine the challenges and opportunities faced by cooperative banks in Rajasthan in the era of digital financial inclusion. Given the exploratory nature of the topic, the research relies entirely on secondary data obtained from credible and authoritative sources. These sources include reports and publications from the Reserve Bank of India (RBI), which provide regulatory guidelines, performance indicators, and insights into digital banking trends; NABARD annual reports and state focus papers, highlighting the role of cooperative banks in rural finance and technological adoption; Government of India publications on Digital India initiatives and Pradhan Mantri Jan Dhan Yojana (PMJDY), which offer information on policy frameworks supporting financial inclusion; as well as Rajasthan State Cooperative Bank (RSCB) documents, which provide state-specific data on operational structures and digitization efforts. In addition, academic research papers and industry analyses were consulted to understand socio-economic, institutional, and technological aspects influencing cooperative banks.

The study employs a descriptive approach to synthesize existing literature and data, focusing on the current status of digital adoption, the socio-economic and infrastructural challenges, and the emerging opportunities for cooperative banks in Rajasthan. Furthermore, a comparative and analytical perspective is applied to examine variations in digital adoption across the three-tier cooperative banking structure, namely State Cooperative Banks (SCBs), District Central Cooperative Banks (DCCBs), and Primary Agricultural Credit Societies (PACS).

IV. Review of Literature

Digital financial inclusion has been widely recognized in academic and policy literature as a transformative force for expanding access to banking services. Studies suggest that digital channels reduce transaction costs, improve transparency, and enhance operational efficiency benefits that are especially relevant for cooperative banks operating in rural and semi-urban areas.[4] However, despite these advantages, cooperative banks face significant challenges in digital adoption. Byasa and Bhusawale (2023) argue that in many cooperative banks, especially those in rural regions, low internet penetration and inadequate telecom infrastructure hinder the uptake of digital banking. Their study highlights that many such banks lack the necessary systems for mobile banking, and their core banking adoption remains limited due to financial and technical constraints.

Regulatory and governance challenges also complicate the digital transition. According to a report by JETIR (2024), cooperative banks struggle with regulatory compliance burdens and dual-control issues, which limit their ability to modernize rapidly.[5] This is consistent with observations in other studies that emphasize the slow pace of adopting new technology due not only to financial limitations but also to governance structures that are not sufficiently agile to support digital innovation.

The role of government policy and digital inclusion initiatives is central in the literature. For example, simplified Aadhaar-based authentication frameworks introduced by UIDAI have enabled cooperative banks to implement e-KYC and AEPS services more cost-effectively, which in turn supports their digital outreach to remote and underserved customers. This policy-level support aligns with the larger push by NABARD: the NABARD Chairman has announced a target for digitizing cooperative banks by March 2025, including setting up a shared services entity in collaboration with fintech firms.

Cybersecurity risks also feature prominently in the literature. As cooperative banks expand their digital footprint, they become more exposed to phishing, data breaches, and other cyber threats. Pawar (2024) notes that many cooperative banks lack the strong cybersecurity infrastructure required to manage these risks effectively.[6] Additionally, broader studies on digital banking (e.g., Waliullah et al., 2025) indicate growing concern over cyber vulnerabilities and emphasize the need for stricter security protocols and regulatory oversight.[7]

Finally, research explores the potential of partnerships with fintech firms. Bhatia et al., 2025 highlight that such collaborations can help cooperative banks deploy advanced technologies like AI-based fraud detection, biometric authentication, and data analytics without bearing the full cost of development internally.[4] Complementing this, RBI studies show that AI adoption in cooperative banks is still nascent, primarily due to resource constraints and lack of infrastructure, suggesting a need for shared “AI zones” or collaborative infrastructure models.

Table 1: Digital Adoption Status in Rajasthan Cooperative Banks

Parameter	SCB	DCCB	PACS
Core Banking Solution (CBS)	High Adoption	Moderate	Low–Moderate
AEPS Integration	Yes	Mostly Yes	Partial
Mobile Banking	Yes	Limited	Very Limited
Digital Training for Staff	Good	Average	Poor
IT Infrastructure Quality	Strong	Moderate	Weak

V. Challenges Faced by Cooperative Banks in Rajasthan

5.1 Low Digital Literacy

Low digital literacy remains a significant barrier to digital adoption among the rural customers of cooperative banks in Rajasthan. A large segment of these customers is unfamiliar with essential digital financial services such as mobile banking, UPI, and Aadhaar Enabled Payment System (AEPS), resulting in low utilization of these channels. According to research in the region, limited exposure to digital banking

platforms and a pervasive lack of awareness contribute to this challenge, as many individuals remain comfortable with traditional, cash-based transactions and view new technologies with suspicion.[8]

The fear of financial fraud and concerns over data privacy are common, further restricting trust in digital banking solutions. Socio-economic factors such as lower levels of formal education, the digital gender gap, and lack of access to smartphones or stable internet connections aggravate the problem among rural populations. Despite ongoing government initiatives and some progress through digital literacy campaigns by NABARD and the Ministry of Cooperation, the digital divide persists, continuing to hinder financial inclusion through cooperative banks in Rajasthan

5.2 Limited Internet and Technological Infrastructure

Many rural regions in Rajasthan still experience significant limitations in internet connectivity and technological infrastructure, which directly impacts the ability of cooperative banks including Primary Agricultural Credit Societies (PACS) and District Central Cooperative Banks (DCBs) to effectively deliver digital financial services. Although government projects such as BharatNet have made considerable progress in extending optical fiber and broadband access to gram panchayats, a digital divide persists because last-mile connectivity in several villages remains incomplete or unreliable. Weak network signals, slow internet speeds, and frequent outages are common in remote and sparsely populated areas, reducing the effectiveness and reliability of mobile banking and online payment systems.

Furthermore, many cooperative banking units lack updated computer systems and secure digital networks, hampering seamless integration with national digital payment platforms and government welfare schemes. This technology gap means rural banks continue to rely heavily on manual processes, resulting in slower transactions, increased risk of errors, and limited ability to offer advanced digital services. Upgrading technological infrastructure and network connectivity remains a critical challenge to unlocking the full potential of digital financial inclusion in Rajasthan's cooperative banking sector.[4]

5.3 Cybersecurity Concerns

The rapid digital expansion of cooperative banks in Rajasthan has markedly increased their exposure to cybersecurity threats, including cyber fraud, data breaches, ransomware attacks, and phishing scams. A notable ransomware attack in mid-2024 disrupted operations across over 200 cooperative and regional rural banks in India, including many in Rajasthan, highlighting vulnerabilities in their cybersecurity infrastructure. This attack encrypted critical banking data, halted transactions, and caused widespread inconvenience to millions of customers.

Cooperative banks often lag behind commercial banks in establishing robust cybersecurity frameworks due to constrained financial and technical resources, which makes them particularly vulnerable to sophisticated

cyber threats. Many lack comprehensive incident response plans, regular security audits, and staff cybersecurity training, increasing the risk of successful attacks.[9]

In Rajasthan, there have also been cases where internal collusion with cyber fraudsters has led to fraudulent transactions and significant financial losses, underlining the need for strengthened internal controls and governance. The Reserve Bank of India and other regulatory bodies have issued cybersecurity guidelines for cooperative banks, but consistent implementation remains a challenge. Strengthening cybersecurity architecture, investing in advanced protection tools, conducting regular training, and fostering collaboration with cybersecurity experts are critical steps to safeguarding cooperative banks in Rajasthan against rising cyber risks.

5.4 Resistance to Change

Resistance to change by employees and customers is a significant challenge for cooperative banks in Rajasthan undergoing digital transformation. Many employees, accustomed to traditional banking practices, show reluctance or hesitation in adopting new digital tools and processes. This resistance stems from factors such as fear of job displacement, lack of familiarity with technology, and uncertainty about the benefits of digital reforms. The cultural mindset within these banking institutions often favors in-person interactions and manual workflows over automated, technology-driven operations, slowing down the pace of digital adoption. [10]

Similarly, customers especially in rural areas prefer physical interactions with bank staff due to longstanding trust issues and personal relationships they have built over time. Many customers lack confidence in digital channels like mobile apps and online payments, fearing technical glitches or fraud. This preference for traditional methods, combined with limited digital literacy, creates friction in transitioning to digitally enabled services. Overcoming this resistance requires cooperative banks to invest in comprehensive training programs for employees and awareness campaigns for customers, emphasizing the security, convenience, and accessibility advantages of digital banking. Encouraging gradual adoption and reinforcing trust through customer-centric, tech-enabled services are essential for successful digital transformation in Rajasthan's cooperative banking sector.[11]

5.5 Financial and Capacity Constraints

Cooperative banks in Rajasthan face significant financial and capacity constraints that impact their ability to invest adequately in advanced IT infrastructure, staff training, and digital service delivery systems. Limited access to capital, dependence on member contributions, and competition from better-funded commercial banks restrict their financial resources. This lack of funds delays the adoption of modern digital technologies such as Core Banking Solutions (CBS), secure online transaction systems, mobile banking

platforms, and integrated fintech collaborations essential for enhancing operational efficiency and customer convenience.[12]

Capacity constraints further exacerbate the situation, as many cooperative banks struggle with insufficient skilled human resources capable of managing and sustaining digital initiatives. Training programs are often limited, and the rapid pace of technological change demands continuous upskilling and change management efforts that few cooperative banks can afford. These financial and capacity challenges create a cycle where inadequate investment hampers digital transformation, which in turn affects competitiveness and the ability to attract new customers in an increasingly digital marketplace. Addressing these constraints through targeted government support, strategic partnerships, and capacity-building initiatives is critical for cooperative banks in Rajasthan to successfully navigate digital financial inclusion. [11]

5.6 Regulatory and Operational Barriers

Cooperative banks in Rajasthan face significant regulatory and operational barriers in complying with the stringent norms set by the Reserve Bank of India (RBI) for digital banking, data protection, and cybersecurity. The multi-tier administrative structure—comprising State Cooperative Banks (SCBs), District Central Cooperative Banks (DCBs), and Primary Agricultural Credit Societies (PACS)—adds complexity to governance, oversight, and uniform implementation of RBI regulations. RBI's Digital Banking Channels Authorisation Directions, 2025, lay down detailed rules requiring banks to implement core banking solutions, obtain prior approvals for transactional digital services, and adhere to rigorous cybersecurity and risk management standards.

Failure to meet these regulatory requirements can result in penalties, as seen in various cooperative banks across India, emphasizing the need for strict compliance and enhanced internal controls. The layered cooperative structure complicates coordination and enforcement of uniform policies, creating operational challenges for the effective rollout and monitoring of digital banking services. Banks must ensure continuous adherence to laws such as the Information Technology Act, 2000, and the Digital Personal Data Protection Act, 2023, along with RBI's prudential norms. This regulatory burden demands significant investment in technology, skilled manpower, compliance frameworks, and robust audit mechanisms, often stretching the limited resources of cooperative banks in Rajasthan. Therefore, regulatory and operational barriers remain critical challenges in achieving smooth digital financial inclusion through cooperative banks in the state.

Table 2: Key Challenges Faced by Cooperative Banks in Rajasthan

Challenge	Description
Low Digital Literacy	Many rural customers are unfamiliar with digital payment systems, mobile banking, and UPI, limiting adoption.
Weak Internet Infrastructure	Limited connectivity in rural areas affects digital transaction speed and reliability.
Cybersecurity Risks	Lack of advanced security systems increases vulnerability to cyber fraud and data breaches.
Resistance to Change	Employees and customers may be hesitant to adopt digital tools due to familiarity with traditional methods.
Financial Constraints	Limited funds for IT investment and staff training hinder digital transformation.
Regulatory Challenges	Multi-tier cooperative structure (SCB–DCCB–PACS) complicates digital compliance and monitoring.

VI. Opportunities in the Era of Digital Financial Inclusion

6.1 Support from Government Digital Initiatives

Government digital initiatives provide a strong foundational support system for the digital expansion of cooperative banks in Rajasthan. Schemes such as the Pradhan Mantri Jan Dhan Yojana (PMJDY) have significantly expanded the banking footprint by creating millions of new savings accounts, particularly targeting the financially excluded rural and marginalized populations. This government-backed account opening drive complements cooperative banks' goal of broadening financial inclusion and creates a ready base of digital banking users.

The Digital India campaign has been instrumental in enhancing digital infrastructure, including internet connectivity, mobile penetration, and the establishment of Common Service Centres (CSCs) which act as access points for digital services in remote areas. Aadhaar-enabled services (AES) have further facilitated identity-based authentication and quick onboarding processes, streamlining banking transactions while improving security and reducing fraud.[8]

Direct Benefit Transfer (DBT) schemes leverage digital banking platforms to ensure the timely and transparent delivery of government subsidies, pensions, and welfare payments directly into beneficiaries' accounts. Cooperative banks, as critical banking service providers in rural India, act as conduits for these payments, thereby integrating more citizens into the digital finance ecosystem. Collectively, these government initiatives create favorable conditions that encourage cooperative banks to adopt digital banking services, improve outreach, and deepen financial inclusion across Rajasthan.

6.2 Expansion of Financial Access

Digital platforms have significantly empowered cooperative banks in Rajasthan to expand financial access, overcoming geographical and infrastructural barriers that traditionally limited banking outreach in remote villages. Unlike physical branches, which require substantial investment and personnel, digital banking services such as mobile banking, internet banking, Unified Payments Interface (UPI), and Aadhaar Enabled Payment System (AEPS) allow cooperative banks to serve customers in far-flung rural areas efficiently and cost-effectively. This virtual presence enables seamless transactions, loan applications, and payments without the need for customers to travel long distances, thereby fostering greater financial inclusion.

Cooperative banks leverage these digital channels to extend critical financial services like savings accounts, credit facilities, insurance products, and government benefit transfers to underserved populations. This expansion supports the economic activities of farmers, self-help groups, women entrepreneurs, and small businesses, which constitute the backbone of Rajasthan's rural economy. Studies confirm the pivotal role played by cooperative banks in bridging the credit gap for micro and small borrowers by using technology to streamline banking operations. Furthermore, digital access promotes financial literacy, fosters trust in formal financial systems, and facilitates inclusive growth by integrating marginalized communities into the mainstream economy. Thus, digital platforms serve as powerful enablers for cooperative banks in Rajasthan to fulfill their mission of comprehensive financial inclusion.[13]

6.3 Enhanced Operational Efficiency

Core Banking Solutions (CBS), digital payment systems, and automated loan processing have greatly enhanced the operational efficiency of cooperative banks in Rajasthan. CBS technology enables the networking of multiple branches and banking units (including State Cooperative Banks, District Central Cooperative Banks, and Primary Agricultural Credit Societies), allowing customers to access their accounts and conduct transactions seamlessly from any branch. This reduces dependence on manual ledger maintenance and paperwork, streamlines cash flows, and improves data accuracy through centralized real-time information management.[14]

Digital payments simplify transactions, reduce the risk of errors, and speed up fund transfers via platforms like UPI and AEPS, providing convenience and timely service. Automated loan processing systems minimize human intervention, ensure faster credit assessments, reduce operational delays, and increase transparency—thereby improving customer satisfaction and lowering administrative costs. These technologies collectively help cooperative banks reduce transaction times, mitigate errors, enhance financial reporting, and strengthen internal controls. The ongoing implementation of CBS in Rajasthan's cooperative banking, supported by NABARD and the government, is steadily transforming traditional processes, enabling banks to manage increasing volumes of business more efficiently and contribute effectively to rural financial inclusion.

6.4 Collaboration with Fintech Companies

Collaborations with fintech companies present a promising opportunity for cooperative banks in Rajasthan to accelerate their digital transformation and enhance service delivery. By partnering with fintech firms, cooperative banks can integrate modern technologies such as user-friendly mobile applications, biometric authentication systems, digital credit scoring models, and artificial intelligence (AI)-based fraud detection mechanisms. These technologies not only improve the customer experience by providing convenient, secure, and accessible banking services but also strengthen banks' operational capabilities by automating risk assessment and enhancing transaction security.

Several cooperative banks in Rajasthan have started engaging with fintechs to offer innovative digital products tailored to rural and semi-urban customers. For example, collaborations have enabled the launch of digital lending platforms that use alternative data for credit evaluation, thereby expanding credit access to underserved groups. Biometric and AI-enabled solutions help in reducing fraud and ensuring compliance with regulatory requirements. Industry conferences like BharatCoop 2025 have spotlighted the critical role of fintech partnerships in shaping the cooperative banking sector's future, emphasizing technology's potential to empower rural and underserved communities.

Such partnerships also facilitate knowledge exchange and capacity building, equipping cooperative banks with the expertise to sustain digital innovation alongside their traditional strengths in community banking. The convergence of cooperative banking with fintech innovation holds the potential for greater financial inclusion, improved efficiency, and resilience in Rajasthan's evolving financial ecosystem.

6.5 New Revenue Streams

Digital financial inclusion offers cooperative banks in Rajasthan a valuable opportunity to diversify their income sources by introducing new digital products and services. These include micro-insurance policies tailored to the needs of rural populations, mobile wallets that facilitate cashless payments, online savings accounts with easy access and management, and digital lending platforms that automate credit assessments and disbursements. These digital revenue streams not only complement traditional banking income but also help cooperative banks remain competitive and relevant in an increasingly digital financial ecosystem.

The introduction of digital products enables cooperative banks to tap into underexplored markets, such as youth, women entrepreneurs, and small businesses, by offering products that cater to their specific requirements and preferences. Additionally, reduced operational costs via automation and broader customer outreach through digital channels contribute to improved profitability. The Rajasthan State Cooperative Bank's strategic focus on digital transformation and fintech collaborations highlights the sector's growing commitment to leveraging technology to open new growth avenues. Thus, embracing digital financial

products and services is essential for cooperative banks in Rajasthan to create sustainable revenue models while advancing financial inclusion goals.[10]

6.6 Improved Customer Convenience

In Rajasthan, cooperative banks have increasingly adopted digital services such as SMS alerts, UPI payments, ATM networks, and mobile banking to enhance customer convenience and transparency. These services enable account holders to access their funds, make payments, and monitor transactions anytime and anywhere, reducing the need to visit bank branches physically. For example, SMS alerts notify customers promptly about transactions, helping them keep track of account activities and detect any unauthorized use swiftly. UPI payments offer a simple and secure way to transfer money instantly, while mobile banking apps, such as the RSCB Mobi App, facilitate a wide range of services including funds transfer, bill payments, and account management directly from smartphones.

The ATM networks further add to the convenience, providing easy cash withdrawal options and basic banking services beyond traditional banking hours. Such digital interventions significantly improve customer satisfaction by offering faster, accessible, and secure banking experiences. Moreover, these services promote financial transparency by providing clear, real-time transaction information, building customer trust in cooperative banks. These enhancements not only cater to urban and semi-urban customers but are vital for rural populations, making banking services more inclusive and user-friendly throughout Rajasthan.[15]

Table 3: Opportunities for Cooperative Banks through Digital Financial Inclusion

Opportunity	Expected Impact
Government Digital Schemes (PMJDY, Digital India)	Strengthens account penetration and facilitates efficient Direct Benefit Transfer (DBT) system.
Wider Financial Access	Enables branchless banking in remote villages, expanding financial inclusion.
Operational Efficiency	Core Banking Solutions (CBS) and digital payments make processes faster, more accurate, and reduce operational errors.
Fintech Collaboration	Adoption of mobile apps, biometric KYC, and AI-based fraud detection improves service delivery and security.
New Digital Products	Micro-insurance, digital lending, and digital wallets diversify income sources and enhance profitability.
Improved Customer Convenience	Services like UPI payments, SMS alerts, and ATM networks enhance customer satisfaction and accessibility.

VII. Discussion

The digital transformation of cooperative banks in Rajasthan presents a combination of structural, technological, and socio-economic challenges. However, the landscape is equally rich with possibilities. With active support from government programs, innovations in fintech, and the adoption of CBS across cooperative structures, banks can significantly enhance their operational capabilities.

Digital adoption must be seen not only as a technological upgrade but as a holistic reform involving staff training, customer awareness, improved governance, and better risk management. Successful integration of digital tools can empower cooperative banks to play a stronger role in promoting inclusive growth in Rajasthan.

VIII. Conclusion

The shift towards digital financial inclusion offers cooperative banks in Rajasthan significant opportunities for modernization, improved service delivery, and expanded outreach. Although challenges like infrastructural gaps, digital illiteracy, and cybersecurity risks persist, strategic planning and supportive government initiatives can enable cooperative banks to embrace digital transformation effectively. Strengthening their digital capacity will not only enhance financial inclusion but also contribute to sustainable rural development in Rajasthan.

References

- [1] A. Chaturvedi and K. Sangwan, "Performance Evaluation of District Central Co-Operative Banks of Rajasthan," *Res. Chronicler Int. Multidiscip. Res. J.*, 2019.
- [2] [2] A. Chaturvedi and K. Sangwan, "A Study of Non-Performing Assets of District Central Co-operative Banks in Rajasthan," *Int. J. Commer. IT Soc. Sci.*, 2017.
- [3] [3] M. G. Nai and D. L. . Arya, "COMPARATIVE STUDY OF THE CHURU CENTRAL CO-OPERATIVE BANK AND RAJASTHAN STATE CO-OPERATIVE BANK: AN EMPIRICAL ANALYSIS," *GEDRAG Organ. Rev.*, 2020, doi: 10.37896/gor33.02/058.
- [4] [4] D. N. Bhatia, D. A. Patil, and M. S. S. Khedekar, "To Study the Challenges and Opportunities in the Growth and Sustainability of Cooperative Banks," *J. Mark. Soc. Res.*, vol. 2, no. 5, pp. 447–452, 2025, [Online]. Available: <https://www.ookla.com/articles/india-mobile-connectivity-1h2025>
- [5] [5] D. P. N. T. Rekha Rani Sidana, "THE EVOLUTION OF COOPERATIVE BANKS IN INDIA," *J. Emerg. Technol. Innov. Res.*, vol. 11, no. 10, pp. 524–532, 2024.
- [6] [6] jaideep Pawar, "Revolutionising Cooperative Banks: The Promise and Challenges of Digital

- Payments in India,” *linkedin*, 2024, [Online]. Available: https://www.linkedin.com/pulse/revolutionising-cooperative-banks-promise-challenges-digital-pawar-0gz6f?utm_source=chatgpt.com
- [7] [7] M. Waliullah, M. Z. H. George, M. T. Hasan, M. K. Alam, M. S. K. Munira, and N. A. Siddiqui, “ASSESSING THE INFLUENCE OF CYBERSECURITY THREATS AND RISKS ON THE ADOPTION AND GROWTH OF DIGITAL BANKING: A SYSTEMATIC LITERATURE REVIEW,” *Am. J. Adv. Technol. Eng. Solut.*, vol. 1, no. 01, pp. 226–257, Feb. 2025, doi: 10.63125/fh49gz18.
- [8] [8] A. Gupta and P. H. Purohit, “Significance of Digital Banking Adoption in Rajasthan: A Systematic Literature Review,” *Int. J. Sci. Eng. Technol.*, vol. 12, no. 4, 2024, [Online]. Available: https://www.ijset.in/wp-content/uploads/IJSET_V12_issue4_685.pdf
- [9] [9] D. Mahendra and S. Khairnar, “NEED AND SCOPE OF CYBER- SECURITY IN COOPERATIVE BANKING,” *Int. J. Sci. Res.*, vol. 13, no. 11, pp. 38–39, 2024, doi: 10.36106/ijsr.
- [10] [10] D. Aggarwal, “Digital Transformation in India’s Cooperative Bank,” *Int. J. Nov. Res. Dev.*, vol. 9, no. 5, pp. 1–16, 2024, [Online]. Available: <https://www.ijnrd.org/papers/IJNRD2405601.pdf>
- [11] [11] Mohit Nebhnani, “digital transformation in cooperative banks,” *pirimidtech*, 2022, [Online]. Available: <https://pirimidtech.com/digital-transformation-in-cooperative-banks/>
- [12] [12] D. R. Gupta, “A Study of Financial Health Analysis in Special Reference to Rajasthan State Cooperative Bank,” *testmagzine*, vol. 83, 2020, [Online]. Available: <http://testmagzine.biz/index.php/testmagzine/article/view/14560/11164>
- [13] [13] A. P. Manoj Kumar, Virendra Singh, “Challenges and Opportunities for Cooperative Banks in Enhancing Financial Inclusion in PALI District,” *J. Adv. Futur. Res.*, vol. 3, no. 7, pp. 90–106, 2025.
- [14] [14] op gupta IPS SETHI, “NIC’s Cooperative Core Banking Solution Rural Banking Made Closer,” *E-Gov Prod. Serv.*, 2016, [Online]. Available: https://informatics.nic.in/uploads/pdfs/e34043b6_core banking.pdf
- [15] [15] A. Imandar, “Digital Banking in Cooperative Banks – Net Banking, UPI, and Mobile Banking,” *bhandaradccb*, 2025, [Online]. Available: <https://bhandaradccb.in/digital-banking-in-cooperative-banks-net-banking-upi-and-mobile-banking/>

Websites

1. <https://www.nelito.com/blog/digital-transformation-in-cooperative-banks-with-loan-origination-systems-los-advancing-financial-inclusion-in-india.html>
2. <https://thefoundermedia.com/cooperative-banks-embrace-digital-future-at-bharatcoop-2025/>
3. <https://www.scribd.com/presentation/847676955/Rajasthan-State-Cooperative-Bank-1>
4. <https://www.cooperativebanks.in/rbi-desk/low-adoption-of-ai-in-cooperative-banks-a-rbi-study/>
5. <https://bfsi.economictimes.indiatimes.com/news/banking/cooperative-banks-to-be-digitised-by-march-2025-nabard-chairman/115714948>
6. https://www.business-standard.com/industry/banking/cooperative-banks-get-simplified-aadhaar-system-to-expand-financial-access-125091900826_1.html
7. <https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2080081>
8. <https://www.cybercube.co/ransomware-attack>
9. <https://primeinfoserv.com/ransomware-attack-disrupts-over-200-co-operative-and-regional-rural-banks-in-india/>
10. <https://www.indiancooperative.com/co-op-news-snippets/rbi-penalties-three-co-op-banks-for-regulatory-violations/>
11. <https://www.linkedin.com/pulse/rbis-new-draft-rules-digital-banking-step-towards-safer-jcvzf>
12. <https://vajiramandravi.com/current-affairs/cooperative-banks/>
13. <https://news.abplive.com/business/cooperative-banks-to-go-digital-by-2025-says-nabard-chairman-1734041>
14. <https://rgavp.rajasthan.gov.in/websitemaster/FinancialInclusion>